

Amendments to the Claims:

The following claims will replace all prior versions of the claims in this application (in the unlikely event that no claims follow herein, the previously pending claims will remain):

1-45. (Cancelled).

46. (Currently Amended) An apparatus for the separation of waste constituents from matrices,

the apparatus comprising:

a vessel comprising a frame;

one or more removable trays adapted to be laterally inserted in the frame;

a manifold for removal of gases emerging from the matrices; and

a heater positioned below the one or more removable trays when the one or more removable trays are inserted in the frame; and

a device for mechanically agitating the matrices, comprising:

at least one mixing flight located in an interior of the one or more removable trays and which moves in a plane that is substantially parallel to the bottom

part of

the one or more removable trays;

a central drive shaft to which the at least one mixing flight is attached;

a motor for driving the at least one mixing flight;

a drive sprocket coupled to the motor; and

a slave sprocket coupled to the central drive shaft and is coupled to the drive sprocket via a drive chain in a configuration that reduces the power requirements of the motor,

wherein the frame receives the one or more removable trays;

wherein the one or more removable trays comprises a bottom part and peripheral sidewalls extending therefrom, the bottom part and the peripheral sidewalls have a unitary construction, the bottom part is structured so as to define orifices in the bottom of the one or more removable trays, and the sidewalls form the outer walls of the vessel when the one or more trays are inserted into the vessel; and

wherein the manifold is positioned on top of the vessel and is raised to allow the one or more trays to be inserted into the vessel or removed from the vessel and is lowered after the tray is inserted into the vessel and is sealed to a top edge of the one or more removable trays so that air is forced to flow through the matrices and not around the matrices.

47. (Previously Presented) The apparatus of claim 46, further comprising:
a device for generating a vacuum for withdrawing gases through the manifold,
wherein the device for generating a vacuum is connected to the manifold; and
wherein the device for generating a vacuum creates a sub-atmospheric pressure
inside of the vessel to reduce the boiling points of contaminants in the matrices.
48. (Previously Presented) The apparatus of claim 46, wherein the bottom part is
a screen.
49. (Previously Presented) The apparatus of claim 46, wherein the bottom part is
slotted.
50. (Previously Presented) The apparatus of claim 46, wherein the one or more
removable trays have fork lift pockets.
51. (Previously Presented) The apparatus of claim 46, wherein the heater
includes 8 to 12 radiant heaters.
52. (Cancelled)
53. (Previously Presented) The apparatus of claim 46, wherein said manifold
comprises a heat resistant gasket for sealing the manifold to the top edge of the one or more
removable trays.
54. (Previously Presented) The apparatus of claim 46, wherein said manifold
contains a 1 to 100 micron dry filter.
55. (Previously Presented) The apparatus of claim 46, comprising between 2 and
4 of the one or more removable trays removable trays and the manifold seals to an outer top
edge of the between 2 and 4 of the one or more removable trays.
56. (Previously Presented) The apparatus of claim 46, wherein the apparatus
comprises a hydraulic system, and wherein the hydraulic system is positioned under the
manifold and lifts and lowers the manifold from the one or more removable trays.

57. (Previously Presented) The apparatus of claim 46, wherein a loading capacity of the one or more removable trays is at least about 2.5 cubic yards.

58. (Previously Presented) The apparatus of claim 46, wherein a loading capacity of the one or more removable trays is at least about 1 cubic foot.

59. (Cancelled)

60. (Currently Amended) An apparatus for the separation of waste constituents from matrices,

the apparatus comprising:

a vessel comprising a frame;

one or more removable trays adapted to be laterally inserted in the frame;

a manifold for removal of gases emerging from the matrices;

a heater positioned below the one or more removable trays when the one or more removable trays are inserted in the frame;

a device for generating a vacuum for withdrawing gases through the manifold; and

a device for mechanically agitating the matrices, comprising:

at least one mixing flight located in an interior of the one or more removable trays and which moves in a plane that is substantially parallel to the bottom

part of

the one or more removable trays;

a central drive shaft to which the at least one mixing flight is attached;

a motor for driving the at least one mixing flight;

a drive sprocket coupled to the motor; and

a slave sprocket coupled to the central drive shaft and is coupled to the drive sprocket via a drive chain in a configuration that reduces the power requirements of the motor;

wherein the frame receives the one or more removable trays;

wherein the one or more removable trays comprises a bottom part and peripheral sidewalls extending therefrom, the bottom part and the peripheral sidewalls have a unitary construction, the bottom part is structured so as to define orifices in the bottom of the one or more removable trays, and the sidewalls form the outer walls of the vessel when the one or more trays are inserted into the vessel;

wherein the one or more removable trays are configured to receive matrices loaded to a depth of a depth of the matrices is between about 4 and about 18 inches;

wherein the manifold is positioned on top of the vessel and is raised to allow the one or more trays to be inserted into the vessel or removed from the vessel and is lowered after the tray is inserted into the vessel and is sealed to a top edge of the one or more removable trays so that air is forced to flow through the matrices and not around the matrices;

wherein the device for generating a vacuum is connected to the manifold; and

wherein the device for generating a vacuum creates a sub-atmospheric pressure inside of the vessel to reduce the boiling points of contaminants in the matrices.

61. (Previously Presented) The apparatus of claim 60, wherein the bottom part is a screen.

62. (Previously Presented) The apparatus of claim 60, wherein the bottom part is slotted.

63. (Previously Presented) The apparatus of claim 60, wherein the one or more removable trays have fork lift pockets.

64. (Previously Presented) The apparatus of claim 60, wherein said manifold comprises a heat resistant gasket for sealing the manifold to the top edge of the one or more removable trays.

65. (Previously Presented) The apparatus of claim 60, wherein said manifold contains a 1 to 100 micron dry filter.

66. (Previously Presented) The apparatus of claim 60, wherein the heater includes 8 to 12 radiant heaters.

67. (Previously Presented) The apparatus of claim 60, comprising between 2 and 4 of the one or more removable trays removable trays and the manifold seals to an outer top edge of the between 2 and 4 of the one or more removable trays.

68. (Previously Presented) The apparatus of claim 60, wherein the apparatus comprises a hydraulic system, and wherein the hydraulic system is positioned under the manifold and lifts and lowers the manifold from the one or more removable trays.

69. (Previously Presented) The apparatus of claim 60, wherein a loading capacity of the one or more removable trays is at least about 1 cubic foot.

70. (Previously Presented) The apparatus of claim 60, wherein a loading capacity of the one or more removable trays is at least about 2.5 cubic yards.

71. (New) An apparatus for the separation of waste constituents from matrices, the apparatus comprising:
a vessel comprising a frame;
one or more removable trays adapted to be laterally inserted in the frame;
a manifold for removal of gases emerging from the matrices;
a heater positioned below the one or more removable trays when the one or more removable trays are inserted in the frame; and
a device for mechanically agitating the matrices, comprising:
at least one mixing flight located in an interior of the one or more removable trays and which moves in a plane that is substantially parallel to the bottom part of
the one or more removable trays;
a central drive shaft to which the at least one mixing flight is attached;
a motor for driving the at least one mixing flight;
a drive sprocket coupled to the motor; and
a slave sprocket coupled to the central drive shaft and is coupled to the drive sprocket via a drive chain in a configuration that reduces the power requirements of the motor,

wherein the frame receives the one or more removable trays;

wherein the one or more removable trays comprises a bottom part and peripheral sidewalls extending therefrom, the bottom part and the peripheral sidewalls have a unitary construction, the bottom part is structured so as to define orifices in the bottom of the one or more removable trays, and the sidewalls form the outer walls of the vessel when the one or more trays are inserted into the vessel;

wherein the manifold is positioned on top of the vessel and is raised to allow the one or more trays to be inserted into the vessel or removed from the vessel and is lowered after the tray is inserted into the vessel and is sealed to a top edge of the one or more removable trays so that air is forced to flow through the matrices and not around the matrices; and

wherein the bottom part of the one or more removable trays is either a screen or is slotted.

72. (New) The apparatus of claim 71, further comprising:
a device for generating a vacuum for withdrawing gases through the manifold,
wherein the device for generating a vacuum is connected to the manifold; and
wherein the device for generating a vacuum creates a sub-atmospheric pressure inside of the vessel to reduce the boiling points of contaminants in the matrices.

73. (New) The apparatus of claim 71, wherein the one or more removable trays have fork lift pockets.

74. (New) The apparatus of claim 71, wherein the heater includes 8 to 12 radiant heaters.

75. (New) The apparatus of claim 71, wherein said manifold comprises a heat resistant gasket for sealing the manifold to the top edge of the one or more removable trays.

76. (New) The apparatus of claim 71, wherein said manifold contains a 1 to 100 micron dry filter.

77. (New) The apparatus of claim 71, comprising between 2 and 4 of the one or more removable trays removable trays and the manifold seals to an outer top edge of the between 2 and 4 of the one or more removable trays.

78. (New) The apparatus of claim 71, wherein the apparatus comprises a hydraulic system, and wherein the hydraulic system is positioned under the manifold and lifts and lowers the manifold from the one or more removable trays.

79. (New) The apparatus of claim 71, wherein a loading capacity of the one or more removable trays is at least about 2.5 cubic yards.

80. (New) The apparatus of claim 71, wherein a loading capacity of the one or more removable trays is at least about 1 cubic foot.

81. (New) The apparatus of claim 71, wherein the one or more removable trays are configured to receive matrices loaded to a depth of between about 4 and about 18 inches.